

YAESU
The radio

FT-991A

HF/VHF/UHF
ALL MODE TRANSCEIVER

CW
1.820

SSB
14.195

C4FM
146.520

SSB
144.200

FM
446.000

CW
7.030

SSB
21.295



〈Actual size〉

Explore the Vast Ocean of Radio waves HF through UHF

《Wide-Coverage Transceiver》

With Real-Time Spectrum Scope and Multi-Color Waterfall Display

Receiver Block Diagram

The YAESU IF DSP is Famous for Superb Interference Rejection

Same high-speed floating point DSP as used in FTD Series

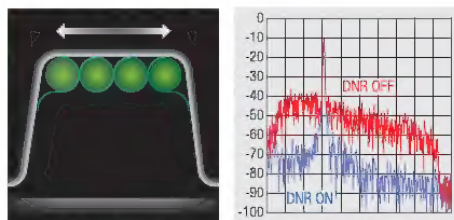
The high speed floating point DSP chip TMS320C6746 (3000 MIPS / 2250 MFLOPS) from Texas Instruments, makes possible excellent interference rejection with actual signals under real-world conditions, not only in the HF but also in the VHF and UHF bands.



32-bit High Speed Floating Point DSP

Highly effective interference rejection

The IF WIDTH and IF SHIFT functions are the basis for removing interfering signals and are easily implemented for the best effect. The efficacy of interference rejection is further enhanced by sophisticated functions inherited from the FTD series, such as the 16-stage digital noise reduction and the DNF (AUTO NOTCH) filter that rapidly tracks even multiple heterodynes. The CONTOUR function that enhances the desired signal with a natural sound, and the NOTCH function with selectable bandwidth, along with other functions are provided for comfortable and convenient DX and Contest QSO operation.



CONTOUR Filter Conceptual Diagram Digital Noise Reduction Performance

Final Stage with Ample Power Reserves: 100 W for HF/50 MHz Band and 50 W for VHF/UHF Band

High quality push-pull amplifier with 100 watts for HF/50 MHz

Using a push-pull arrangement of RD100HF1 MOS-FET devices, renowned for excellent performance in the HF/50 MHz range, the amplifier delivers 100 watts of low-distortion, high-quality power.

High speed 1.8 to 54 MHz antenna tuner included as standard equipment

The high speed digital tuner employs relay switching and features a large 100-channel tuning data memory. This allows the user to instantly call up optimum matching conditions for previously used frequencies.

50 W amplifier for VHF/UHF assures plenty of power for high frequency bands

The final amplifier for the VHF and UHF bands uses the high-output MOS-FET RD70HUF2 device which incorporates two MOS-FETs in a single package, providing ample output power of 50 watts.



V/UHF Final MOS FET RD70HUF2 Device

Support for Advanced C4FM Digital Functions

- V/D mode for simultaneous transmission of voice and data with powerful error correction optimal for mobile use, and Voice FR (Full Rate) mode for high quality audio transmission
- AMS function instantly recognizes digital mode or FM mode and enables mutual communication
- GM (Group Monitor) function allows handy on-screen display of group members that are within communication range
- 126 types of DSQ (Digital Squelch) enable specific selection of communicating stations
- Supports high-definition Amateur Radio WIRES-X internet connection, utilizing C4FM digital technology

* Does not support operation of WIRES-X digital node stations.
* Does not support sending and receiving of images via C4FM digital.

Basic function

Versatile Array of Functions for CW Operation

- Advanced electronic keying (4 to 60 wpm) with FULL BK-IN support
- Electronic Keyer Weight control (2.5 - 4.5)
- CW side tone pitch frequency adjustable (300 - 1050 Hz)
- Message Memory function (5 ch x 50 characters)
- APF function with 3-stage bandwidth selection improves S/N ratio for enhanced intelligibility
- Auto Zero-in function facilitates subtle tuning operations for CW
- Automatic "Beacon" keyer mode
- CW SPOT Feature
- CW Mode reversal (USB or LSB injection)

Convenient Functions for FM Mode

- 104 types of DCS (Digital Code Squelch)
- ARS function provides easy repeater access
- 50-tone CTCSS Encoder/Decoder for FM operation



HF/VHF/UHF 100 W
All Mode Transceiver
(144 MHz/ 430 MHz 50 W)

FT-991A

Useful and Convenient Functions

- Speech Processor ■ Parametric MIC EQ ■ Five-channel digital voice message memory function for repetitive voice messages ■ MULTI dial design facilitates setting operations ■ White LED Key button Illumination
- Independent AF GAIN, RF GAIN and CLAR/VFO-B knobs ■ FH-2 Remote Control (Optional) ■ VOX ■ MOX ■ 99 channel memory (supports memory group view, 12 alphanumeric characters) ■ RTTY/DATA Jack
- TUN/LIN connector allows connection of optional VL-1000 or FC-40 ■ Wide Band Receive Capability (30kHz-56MHz, 118-164MHz, 420-470MHz) ■ CS key brings up a preselected menu with a single touch
- USB port allows connection to a PC with a single cable (CAT control, Audio In/Out interface, PTT/RTTY(FSK) SHIFT control) ■ High Stability 0.5 ppm TCXO ■ Carrying Handle ■ Tilt Stand

Specifications

General	
RX Frequency Range	0.03 - 56 MHz, 118 - 164 MHz, 420 - 470 MHz (operating), 1.8 - 54 MHz, 144 - 148 MHz, 430 - 450 MHz (specified performance, Amateur bands only)
TX Frequency Ranges	1.8 - 54 MHz, 144 - 148 MHz, 430 - 450 MHz (Amateur bands only)
Frequency Stability	±0.5 ppm (after 1 minute @14°F - +122°F/-10°C - +50°C)
Operating Temperature Range	+14°F - +122°F (-10°C - +50°C)
Emission Modes	A1A (CW), A3E (AM), J3E (LSB, USB), F2D, F3E (FM), F7W (C4FM)
Frequency Steps	5 / 10 Hz (SSB, CW, AM), 100 Hz (FM, C4FM)
Antenna Impedance	50 Ohms, unbalanced 16.7 - 150 Ohms, unbalanced (Tuner ON, 1.8 - 30 MHz Amateur bands) 25 - 100 Ohms, unbalanced (Tuner ON, 50 MHz Amateur band)
Power Consumption (Approx.)	RX (no signal) 1.8 A
	RX (signal present) 2.2 A
	TX 23 A (HF/50MHz 100 W), 15 A (144/430MHz 50 W)
Supply Voltage	DC 13.8 V ±15 % (Negative Ground)
Dimensions (W x H x D)	9.0" x 3.2" x 10" (229 x 80 x 253 mm)
Weight (Approx.)	9.5 lbs (4.3 kg)
Transmitter	
Power Output	HF/50MHz: 5 - 100 watts (2 - 25 watts AM carrier) 144/430MHz: 5 - 50 watts (2 - 12.5 watts AM carrier)
Modulation Types	J3E (SSB): Balanced / A3E (AM): Low-Level (Early Stage) F3E (FM): Variable Reactance / F7W (C4FM): 4-level FSK
Maximum FM Deviation	±5.0 kHz / ±2.5 kHz
Harmonic Radiation	Better than -50 dB (1.8 - 30 MHz Amateur bands) Better than -63 dB (1.8 - 30 MHz Amateur bands, above 30MHz)*1 Better than -63 dB (50 MHz Amateur band) Better than -60 dB (144 MHz, 430 MHz Amateur bands)
SSB Carrier Suppression	At least 50 dB below peak output
Undesired Sideband Suppression	At least 50 dB below peak output
Bandwidth	3 kHz (LSB/USB), 500 Hz (CW), 6 kHz (AM), 16 kHz (FM/C4FM)
Audio Response (SSB)	Not more than -6 dB from 300 to 2700 Hz
Microphone Impedance	600 Ohms (200 to 10 kOhms)

Receiver	
Circuit Type	SSB/CW/AM: Triple-conversion Super heterodyne FM/C4FM: Double-conversion Super heterodyne
Intermediate Frequencies	SSB/CW/AM: 69.450 MHz / 9.000 MHz / 24 kHz FM/C4FM: 69.450 MHz / 450 kHz
Sensitivity	SSB/CW (BW: 2.4 kHz, 10 dB S+N/N) 0.158 µV (1.8 - 30 MHz) (AMP 2), 0.125 µV (50 - 54 MHz) (AMP 2) 0.11 µV (144 - 148 MHz), 0.11 µV (430 - 450 MHz) AM (BW: 6 kHz, 10 dB S+N/N, 30 % modulation @400 Hz) 5 µV (0.5 - 1.8 MHz) (AMP 2), 1.6 µV (1.8 - 30 MHz) (AMP 2) 1.25 µV (50 - 54 MHz) (AMP 2) FM (BW: 15 kHz, 12 dB SINAD) 0.35 µV (28 - 30 MHz) (AMP 2), 0.35 µV (50 - 54 MHz) (AMP 2) 0.18 µV (144 - 148 MHz), 0.18 µV (430 - 440 MHz) There is no specification for frequency ranges not listed.
Squelch Sensitivity (TYP)	SSB/CW/AM 1.0 µV (1.8 - 30 MHz, 50 - 54 MHz, AMP 2) 1.0 µV (144 - 148 MHz, 430 - 450 MHz) FM 0.35 µV (28 - 30 MHz, 50 - 54 MHz, AMP 2) 0.125 µV (144 - 148 MHz, 430 - 450 MHz) There is no specification for frequency ranges not listed.
Selectivity	Mode
	-6 dB
	-60 dB
	CW 0.5 kHz or better SSB 2.4 kHz or better AM 6 kHz or better FM 12 kHz or better
Image Rejection	70 dB or better (160 - 6m Amateur bands) 60 dB or better (2m, 70cm Amateur band)
	2.5 W into 4 Ohms with 10% THD
Maximum Audio Output	4 to 8 Ohms (4 Ohms: nominal)
Audio Output Impedance	Less than 4 nW
Conducted Radiation	

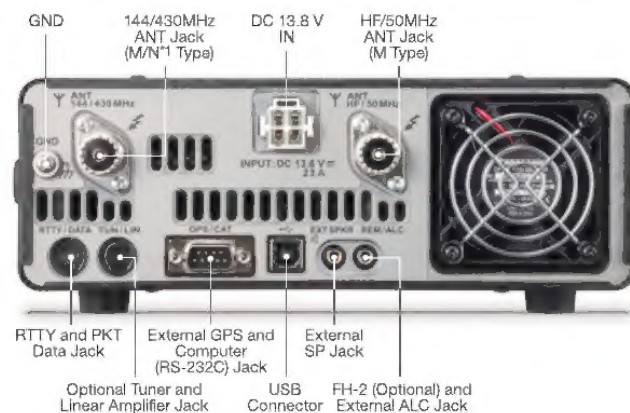
Specifications are subject to change, in the interest of technical improvement, without notice or obligation, and are guaranteed only within the amateur bands.

Supplied Accessories: MH-31A8J Hand Microphone, T9025225 DC Cable

Option

VL-1000 HF - 50 MHz 1 kW Linear Amplifier *2 *3 *4 (50 MHz: 500 W/USA Version) Automatic Antenna Tuner Built In		QUADRA SYSTEM 		
VP-1000 VL-1000 Power Supply *2 *3 *4				
 MH-31A8J Hand Microphones	 MH-36E8J DTMF Hand Microphone	 M-1 Reference Microphone	 MD-200A8X Ultra High fidelity Desktop Microphone	 MD-100A8X Desktop Microphone
 YH-77STA Stereo Headphones Microphone	 FH-2 Remote Control Keypad *3	 FC-40 Automatic Antenna Tuner *4 (for Long wire antenna)	 CT-58 Band Data Cable for VL-1000 *2 *3 *4	 CT-39A Packet Interface Cable
 FP-1023A (USA Only) External Power Supply (13.8 VDC 23 A)	 FP-1030A *2 External Power Supply (13.8 VDC 25 A)	 MMB-90 Mobile Bracket	 ATBK-100 Antenna Base Kit *4 (for BASE operation on 6 m, 2 m and 70 cm Bands)	 ATAS-120A Active Tuning Antenna *4 (Automatic Type)
				 ATAS-25 Active Tuning Antenna (Manual Type)

Rear Panel



About this brochure: We have made this brochure as comprehensive and factual as possible. We reserve the right, however, to make changes at any time in equipment, optional accessories, specifications, model numbers, and availability. Precise frequency range may be different in some countries. Some accessories shown herein may not be available in some countries. Some information may have been updated since the time of printing; please check with your Authorized Yaesu Dealer for complete details.

*1 European version only *2 USA and Asian version only *3 VL-1000 and FH-2 cannot be used simultaneously *4 VL-1000, FC-40, and ATAS-120A cannot be used simultaneously

YAESU
The radio

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